

REMARKS

Reconsideration of the Application is requested.

Claim Rejections - 35 USC § 112

"Claims 18-19 are rejected under 35 USC 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In particular, although the purpose of the functional unit (microgenerator) has been established, nowhere in the Disclosure of how this functional unit would be able to detect an external magnetic field, wherein this detection would be utilized for a compass. There is no mention of a detection element of detection means within the claimed apparatus. As required, there must be clear enablement to utilize the functional unit as described in the Disclosure.

Applicant's Response

Claims 18 and 19 are cancelled.

Claim Rejections - 35 USC § 103

"Claims 1-17 are rejected under 35 USC 103(a) as being unpatentable over Schafroth US Patent No. 6,124,649 in view of Nelson US Patent No. 4,176,362.

Schafroth teaches a timepiece including in particular a functional unit (not explicitly numbered) including magnetized masses 12, an electronic module 80 including a support with conductive paths connected to at least one integrated circuit 81, wherein at least the conductive paths are in proximity to said functional unit, wherein the support is of synthetic or composite material, wherein the electronic module further includes at least a discrete electronic unit, wherein the discrete electronic unit is a capacitor 82-84, wherein said functional unit is a microgenerator, wherein said microgenerator includes a rotor (not explicitly numbered) including two flanges each having substantially the shape of a disc and each carrying, on its face facing the other flange, an even number (6) of magnetized masses, said electronic module including at least a stator coil 20-22 fixed to said support and partially inserted between the two flanges, wherein the conductive paths of said support connecting

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said at least one coil to said integrated circuit (Col. 2, lines 57+; Col. 3, lines 1+; Fig. 2). Schafroth does not explicitly teach the conductive paths have essentially non-magnetic properties, wherein said paths include a protective layer and an adherence underlayer formed of a on-magnetic material, wherein the non-magnetic material is a nickel based alloy. Nelson teaches an apparatus where alternating layers of materials are utilized, wherein the layers are made of magnetized 50 and non-magnetized 52, wherein the non-magnetized material is nickel. Further, the apparatus shows how places on a recording tape are influenced by the amount of magnetism present. Included in the apparatus are means to apply the layer through etching techniques known in building printed circuit boards (Col. 3, lines 17+; Fig. 2). In addition, within the Applicant's Disclosure, it has been established that in the prior art, said conductive paths are typically made in two steps. The first step consists in depositing an layer of a very good electrically conductive material, such as a copper or gold based alloy. The second step then consists in depositing a fine protective layer, on the conductive layer, formed of a nickel-based alloy with good resistance to oxidization. Sometimes an underlayer is deposited on the substrate before depositing the conductive layer. This underlayer, usually formed of a nickel-based alloy, allows the adherence of the conductive layer to the substrate to be improved (Disclosure, page 2, lines 29). It would have been obvious to a person skilled in the art at the time of the invention to adapt the conductive paths of the Schafroth reference to include conductive paths made exclusively of a non-magnetic material, wherein the material is a nickel-based alloy. Normally, it is expected that a change in temperature, or in concentration, or in both, would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed to produce a new and unexpected result, which is different in kind, and not merely in degree from results of the prior art (In re Aller, 105 USPQ 233 (CCPA 1955)). In the instant case, if using one layer of a non-magnetic, conductive material such as nickel reduces the amount of magnetic inference when used with a layer of magnetic conductive material, then it would be an conclusion that to minimize magnetic inference even more, it would behoove the user to utilize multiple layers of non-magnetic conductive material for the conductive paths, an eliminate magnetic conductive material from usage.

Applicant's Response

As stated in the Office Action, US 6,124,649 (Schafroth) discloses a timepiece including a support with conductive paths, some of these last being located in proximity to the microgenerator.

However, the teaching of US 6,124,649 neither discloses nor suggests the fact that these conductive paths located in proximity to the microgenerator constitute a source of magnetic disturbance within the timepiece movement implying a decrease of the microgenerator yield. Indeed, the main mention to a non-magnetic in US 6,124,649 relates to the second intermediate wheel 51 (col. 2, lines 40 to 50) such a feature being obvious inasmuch this wheel partly contacts and overlaps the microgenerator rotor.

The present invention as claimed in claim 1 concerns a solution which is different with respect to that of US 6,124,649 to improved the yield of a functional unit including magnetized masses, in that it provides conductive paths having essentially non-magnetic properties in proximity to said functional unit. It was not obvious for the one skilled in the art of microgenerators to think that a thin underlayer of conductive paths deposited on PCB could have a significant impact on a microgenerator.

Concerning the citation of US 4,176,362 (Nelson) we disagree with the assertions made in the official action.

First, we believe that the one skilled in the art would not consider this document, as it is part of a remote technical field, i.e. the field of design of magnetic recording heads.

Further, if the one skilled in the art did consider this document, he would not find any teaching appropriate for his task, which consists in improving a microgenerator yield in a timepiece of the Schafroth's kind, for example.

Indeed, we cannot find any suggestion in the Nelson reference of a potential disturbance issued on the functioning of a rotor by the use of magnetic conductive paths.

Thus, we believe that the subject matter of claim fulfills the requirements of 35 USC 103 and is patentable.

As all other claims, 2-17, include the features of claim 1 in combination with additional features, we assert that they are also patentable.

Conclusion

For the reasons detailed above, the Applicant believes that the claims are ready for allowance, and hereby request such.

Respectfully submitted,



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